

CLAIMS

1. Process for the treatment of an unground plant material which comprises at least the following steps:
 - 5 a) prehumidification of said plant material by the addition of a volume of water;
 - b) a rest phase for said humidified plant material;
 - c) exposure of said plant material to ozone,
characterized in that said rest phase has a duration greater than or equal to 1 day, in
10 that the ozone treatment is carried out with a dry ozone-containing gas, and in that it comprises a complementary humidification carried out simultaneously with, or at most 10 minutes before, said exposure to ozone under conditions that make it possible to add from 3 to 10% and preferably from 3 to 5% by weight of water to said plant material, based on the dry weight of the material.
- 15 2. Process according to claim 1 in which the plant material comprises soft wheat grains.
3. Process according to claim 1 in which the plant material comprises hard wheat grains.
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4. Process according to any one of claims 1 to 3 in which the water used for complementary humidification is non-neutral and comprises a pH modifier.
- 25 5. Process according to claim 4 in which the pH of the water used for complementary humidification is between 3 and 6.
6. Process according to claim 5 in which the acidity of the water used for complementary humidification is provided by citric acid, acetic acid or any other food-grade weak acid.
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7. Process according to claim 4 in which the pH of the water used for complementary humidification is between 8 and 12.

8. Process according to claim 7 in which the basicity of the water used for complementary humidification is provided by food-grade sodium hydroxide, sodium carbonate, sodium bicarbonate or any other food-grade basic product.
- 5 9. Process according to any one of claims 1 to 8 in which the rest period is between 24 and 72 hours and preferably between 36 and 48 hours.
- 10 10. Process according to any one of claims 1 to 9 in which the water used for complementary humidification is added to the plant material in the form of a mist consisting of fine droplets produced by spraying the water under pressure.
- 15 11. Process according to any one of claims 2 to 8 in which 3 to 5% by weight of water, based on the grains, is added during the prehumidification in order to increase the moisture content of the grains to a value of between 16 and 18%.
- 20 12. Process according to any one of claims 2 to 11 in which broken grains are introduced prior to prehumidification, the amount of broken grains being between 0.5 and 20% and preferably between 3 and 10% of the total weight of the grains.
- 25 13. Process according to any one of claims 1 to 12 in which the amount of ozone used is between 6 and 20 g of ozone/kg of plant material and preferably between 7 and 13 g of ozone/kg.
14. Process according to any one of claims 1 to 13 in which the concentration of ozone in the ozone-containing carrier gas is between 60 and 200 g/m³ NTP and preferably between 80 and 140 g/m³ NTP.
- 30 15. Process according to any one of claims 1 to 14 in which the pressure of the ozone-containing gas is between 200 and 1100 mbar and preferably between 600 and 800 mbar.
16. Process for the manufacture of flours which comprises treating soft wheat grains with ozone according to any one of claims 1 to 15, and which comprises an additional step for grinding the treated grains.

17. Process according to claim 16 in which the parameters of the process for the treatment of soft wheat grains are chosen in such a way that, after the grain grinding step, the viscosity of the resulting flour is increased by between 10 and 50%, relative to a flour derived from untreated grains, and the P/L ratio of the flour is greater than 2.5 and particularly preferably greater than 3.5.

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18. Flours produced by a process according to claim 17.

19. Process for the manufacture of semolinas or pastas which comprises treating hard wheat grains with ozone according to any one of claims 1 to 15, and which comprises an additional step for grinding the treated grains.

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20. Process according to any one of claims 1, 4 to 10 or 13 to 15 in which the plant material includes seeds of a leguminous plant, preferably soya, pea, carob, guar, colza, cabbage or flax.

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